

I (we) claim:

1. An exhaust gas purifying apparatus for an engine comprising:

a reduction catalyst which is arranged in an exhaust system of the engine, for reducing and purifying nitrogen oxide in an exhaust gas using a reducing agent;

reducing agent supply means having an injection nozzle which is supplied with a reducing agent together with compressed air and atomizes said reducing agent, and which injection-supplies this to an exhaust gas on an upstream side of said reduction catalyst inside an exhaust gas passage of said exhaust system; and

temperature detection means which is provided in the vicinity of said injection nozzle on the upstream side in the exhaust gas passage, and which detects the exhaust gas temperature inside said exhaust gas passage; wherein

said reducing agent supply means uses a detection signal of the exhaust gas temperature from said temperature detection means to set, for that exhaust gas temperature, a supply quantity at or above a lower limit for cooling the interior of said injection nozzle to below a temperature at which the reducing agent crystallizes, and supplies reducing agent to said injection nozzle.

2. The exhaust gas purifying apparatus for an engine according to claim 1, wherein said reducing agent supply means is provided with a control circuit which receives, as an input, a detection signal of the exhaust gas temperature from said temperature detection means, and also receives, as an input, a signal of the operation state of the engine, and which obtains a supply quantity of reducing agent in that engine operation state, and obtains, for that exhaust gas

temperature, a lower limit of a supply quantity of reducing agent for cooling the interior of said injection nozzle to below the temperature at which the reducing agent crystallizes, and compares both of these obtained to set the supply quantity of the reducing agent.

3. The exhaust gas purifying apparatus for an engine according to either one of claim 1 and claim 2, wherein said reducing agent is a urea aqueous solution.

4. An exhaust gas purifying apparatus for an engine comprising:
a reduction catalyst which is arranged in an exhaust system of an engine, for reducing and purifying nitrogen oxide in an exhaust gas using a reducing agent;

reducing agent supply means having an injection nozzle which is supplied with a reducing agent together with compressed air and atomizes said reducing agent, and which injection-supplies this to an exhaust gas on an upstream side of said reduction catalyst inside an exhaust gas passage of said exhaust system; and

temperature detection means which is provided in the vicinity of said injection nozzle on the upstream side of the exhaust gas passage, and which detects the exhaust gas temperature inside said exhaust gas passage; wherein

said reducing agent supply means is provided with pressure detection means for detecting an internal pressure of said injection nozzle, and uses a detection signal of the internal pressure of said injection nozzle to stop supply of compressed air and reducing agent to the injection nozzle when the internal pressure reaches or exceeds a predetermined value, and uses a detection

signal of the exhaust gas temperature from said temperature detection means to restart supply of compressed air and reducing agent to the injection nozzle when the exhaust gas temperature in the vicinity of the injection nozzle reaches or exceeds the melting point of the reducing agent.

5. The exhaust gas purifying apparatus for an engine according to claim 4, wherein said reducing agent supply means is provided with a control circuit which receives, as an input, a detection signal of internal pressure of the injection nozzle from said pressure detection means, and also receives, as an input, a detection signal of the exhaust gas temperature from said temperature detection means, and controls so as to stop the supply of compressed air and reducing agent to the injection nozzle when the internal pressure of the injection nozzle reaches or exceeds a predetermined value, and restart supply of compressed air and reducing agent to the injection nozzle when the exhaust gas temperature in the vicinity of the injection nozzle reaches or exceeds the melting point of the reducing agent.

6. The exhaust gas purifying apparatus for an engine according to either one of claim 4 and claim 5, wherein said reducing agent is a urea aqueous solution.

7. The exhaust gas purifying apparatus for an engine according to claim 6, wherein an exhaust gas temperature in the vicinity of the injection nozzle at the time when the supply of compressed air and reducing agent to said injection nozzle is restarted is set to be 132°C or thereabove.